OCEAN VISUALS

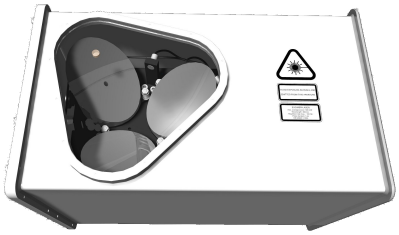
Product datasheet

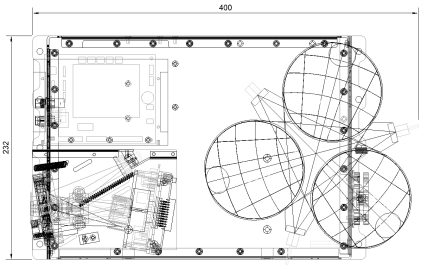
Lightweight Oil-in-Water Locator – ELF OWL™ and OWL™ MAP

Ocean Visuals has developed a lightweight laser remote sensing system for real-time detection of oil spills in the marine environment on board of Remotely Piloted Airborne Systems (RPAS) – Oil-in-Water Locator (ELF OWL™). It is able to detect and classify oil on the water surface and in the water column, and submerged oil. Designed as a single-box unit with its lightweight (less than 25 kg) and low power consumption (less than 250 W) it provides sensing of water at the distances up to 100 m with sensitivity for oil detection down to part per million *(ppm)* concentration range.

The ELF OWL™ operation is based on the method of Hyperspectral Laser Induced Fluorescence (HLIF). Its detector records the spectral response of oil molecules in water to every pulse of UV light of sensing laser. Thanks to the integrated analysis of HLIF spectra the device can distinguish oil from any other substances in water. If found oil content in water is higher than a preset limit, an alarm is triggered. The alarms are reported on-line, and the geo-referenced spectral data are stored in the onboard database.

OWL™ technology is patented, under U.S. Patent 0041882.





The basic setup of ELF OWL™

Technical Specification: ELF OWL™ and OWL™ MAP

Operational	
Sensing distance	Up to 100 m
Conditions of operation	Day and Night
Min oil concentration in water column /oil thickness on the water surface	1 ppm / 1 μm
Pulse Repetition Rate (PRR) - Data Sampling	Up to 100 Hz
Sensing laser	UV, eye-safe
Hyperspectral detector	Ultraviolet (UV) and visible spectral range
GPS	Integrated
Control and communication	
Operational control	Integrated micro-controller
Data storage	Local and central servers
Communication line	Ethernet
Alarm processing	Automatically
Alarm reporting	Real-Time
General	
Power consumption: stand-by operational, at max PRR	90 W 250 W
Dimensions (L x W x H)	40 cm x 24 cm x 31 cm
Weight	24 kg

The Ocean Visuals HLIF LiDAR is accompanied with multifunctional software OWL™ MAP with local and central user interfaces to handle multiple vessels equipped with OWL™ and produce integrated map of oil spill locations and measurements results (type of oil and concentrations) in real-time mode or in selected time window from historical data stored in the database.

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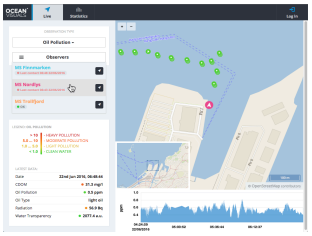
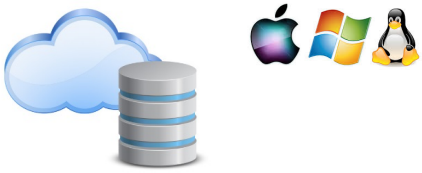
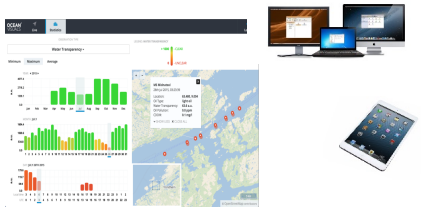
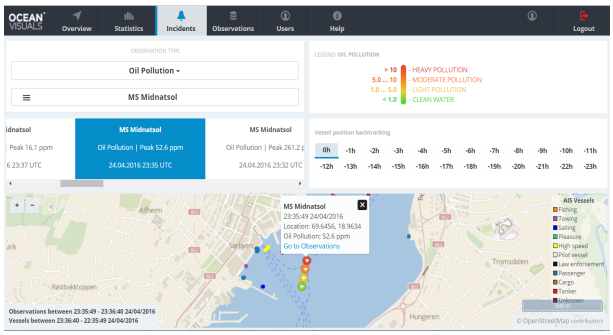
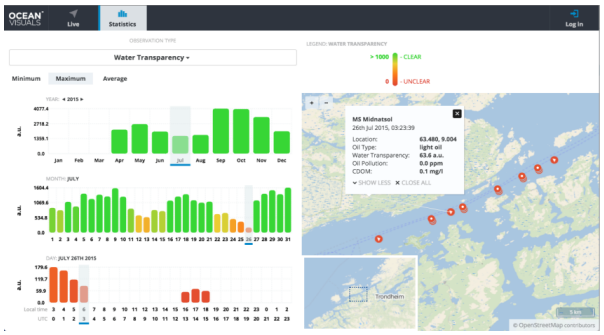
ELF OWL™ and OWL™ MAP

ELF OWL™ and OWL™ MAP  	• Oil detection based on the real time spectral response from the oil molecules in water • Online / Offline data management (collection, initial analysis, distribution) • Online / Offline data visualization (map-based, graphs) • Possible to provide data to 3rd party applications • Configurable notifications / alarms • Data synchronization to OWL™ MAP cloud service based on data priority • Data synchronization to OWL™ MAP client interfaces based on data priority
⇕	• GSM, ICE (CDMA), Iridium (satellite), WiFi • Secure connection (HTTPS)
OWL™ MAP cloud service 	• Data collection, management, and analysis • Storing processed and raw data of interest • 3rd party API for data access based on customer needs • Remote maintenance / customer support
⇕	• Secure connection (HTTPS)
OWL™ MAP client interfaces 	• Map-based visualization (real-time & historical data) • Desktop PC application (Windows, Linux support) • iPad application (iOS support) • Data synchronization across applications (near real-time) • Configurable notifications / alarms



OWL™ MAP: Interactive map with AIS data layer: Oil pollution reporting with backtracking in time



OWL™ MAP: Statistical data for a selected observation period

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